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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/482,769  | 01/13/2000  | Besma Kraiem         | 450117-02372        | 7444             |
| 20999   | 7590        | 12/22/2004           | EXAMINER            |                  |
| FROMMER LAWRENCE & HAUG<br>745 FIFTH AVENUE- 10TH FL.<br>NEW YORK, NY 10151 |             |                      | MUNOZ, GUILLERMO    |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2637                |                  |

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/482,769

Applicant(s)

KRAIEM, BESMA

Examiner

Guillermo Munoz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-9 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-15 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments, see amendment, filed 7/14/2003, with respect to 112 rejections of claims 6-9 and 11-15 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Seki et al..

### ***Claim Objections***

Claim 11 is objected to because of the following informalities:

In Claim 11, should be re-written to improve the Claim language. For example, the phase differential encoder means (5) appears at least twice within the claim language. The claim could be improved by listing claim elements in order as they appear in Figure 1 of the instant application, immediately following the each claimed element with elements characteristics. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-3 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 recites the limitation “the correction factor” in line 6. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the phrase “the correction factor” be changed to —a correction factor—. Additionally, the limitation “QAM signals whose phase is unique to them” renders the claim indefinite for failing to particularly point out how the phase is unique or whom the limitation “them” is referring to.

Claim 2 is dependent on rejected claim 1, and is rejected under 35 U.S.C. 112, second paragraph.

Claim 3 recites the limitation “said multi-amplitude digital modulated signals” in line 2. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the phrase “said multi-amplitude digital modulated signals” be changed to —said quadrature amplitude modulated signals—.

Claim 6 recites the limitation “the correction factor” in line 7. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the phrase “the correction factor” be changed to —a correction factor—.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 6-9 rejected under 35 U.S.C. 102(b) as being anticipated by Seki et al. (cited in office action mailed April 13, 2004).

Regarding claim 1, the limitation “subsequent symbols” is interpreted as subsequent QPSK signals being separated by N-1 symbols, since specification defines subsequent symbols as “ $\phi_k$  and  $\phi_{k-N}$ ”; in view of claim 6, the limitation “QAM signals whose phase is unique to them” is interpreted as 4-QAM or QPSK symbols.

Seki et al. teach all the claimed subject matter “amplitude of said signals are separately and coherently processed...phases...subsequent symbols on a same subcarrier are differentially modulated and demodulated...correction factor...QAM signals whose phase is unique to them” as follows. Seki et al. teach a OFDM frame comprising a plurality of slots; QPSK signals are placed into predetermined slots within the frame, while information symbols (QAM symbols) are placed within the other slots, note Col. 6 line 66- Col. 7 line 10 and figures 2, 6, 7, and 12-16. Seki et al. teach that amplitude and phase variations are detected from the PSK symbols and used to generate an amplitude correction value to demodulate the information symbols, note Col. 2, lines 11-25. Seki et al. teach differential coding the QPSK information symbols, note Col. 12, lines 56-60 figures 6 and 7.

Regarding claim 2, Seki et al. do not explicitly state “amplitudes are coherently transmitted”, however, the functionality of transmitting a mapped constellation, requires prior knowledge of the constellation alphabet, which includes the constellation amplitudes, thereby anticipating the claimed subject matter.

Regarding claim 3, Seki et al. further teach the claimed subject matter “amplitude distortions...separately corrected on each subcarrier”; note Col. 7, lines 38-43.

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Regarding claim 6; as applied to claim 1, Seki et al. further teach the claimed subject matter “defined number of QAM data symbols and a defined number of QPSK control signals” by illustrating the placement of QPSK symbols in predetermined time slots and the QPSK symbols having an equal number of QAM symbols between subsequent QPSK symbols, note figures 6 and 7.

Regarding claim 7, Seki et al. further teach the claimed subject matter “16 QAM”, note Col. 6, line 43.

Regarding claim 8; Seki et al. do not explicitly teach “a running mean of the correction factor”, however, the functionality of obtaining interpolated variations of amplitude levels for correcting QAM symbol amplitudes is the same, note Col. 10, lines 56-67.

Regarding claim 9; as applied to claim 6, Seki et al. anticipates the claimed subject matter “n” and “m” where  $n = 1$  and  $m = 3$ , note figures 6 and 7.

### ***Allowable Subject Matter***

The following is an examiner’s statement of reasons for allowance:

Claims 11-15 are indicated as allowable because the present invention comprises an OFDM communications system having a demultiplexer for separating control symbols from data symbols and generating QAM data symbols and QPSK control symbols combined onto a single subcarriers within the OFDM frame on the transmitter side; and the receiver includes a demultiplexer for separating control symbols from data symbols and demodulating the QAM data symbols and QPSK control symbols. The closest prior art Seki et al. (cited in office action

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mailed April 13, 2004) teach a similar circuit including OFDM communications system having QAM symbols and QPSK symbols combined onto a single subcarrier within the OFDM frame. However, Seki et al. fails to teach the demultiplexer for separating control symbols from data symbols and generating QAM data symbols and QPSK control symbols combined onto a single subcarriers within the OFDM frame on the transmitter side; and the receiver includes a demultiplexer for separating control symbols from data symbols and demodulating the QAM data symbols and QPSK control symbols. The distinct feature of the instant application has been included in independent claims 11 and 14 rendering them allowable. Claims 12-13 and 15 are dependent on independent claims 11 and 14, respectively, and are thereby considered allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claim 11 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Munoz whose telephone number is 571-272-3045. The examiner can normally be reached on Monday-Friday 8:30a.m-4:30p.m..


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



GM  
December 15, 2004



TEMESGHEN GHEBRETINSAE  
PRIMARY EXAMINER  
12/17/04